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## APPENDICES

### Appendix A Resistivity of Polyaniline-Coated Fabric

**Table A1** Surface resistivity of polyaniline-coated polyester fabric doped by the two methods of doping

Doping method	Type of dopant		
	CSA	BSA	PTSA
Doping during the first step	7.124E+09	4.603E+09	2.260E+09
Doping after the final step	2.126E+12	3.771E+13	5.489E+10

**Table A2** Volume resistivity of polyaniline-coated polyester fabric doped by the two methods of doping

Doping method	Type of dopant		
	CSA	BSA	PTSA
Doping during the first step	2.645E+08	2.639E+08	2.640E+08
Doping after the final step	3.164E+11	1.034E+12	1.199E+11

**Table A3** Surface resistivity of polyaniline-coated polyester fabric doped with different types of dopant at various concentrations

Concentration of dopant (mM)	Type of dopant		
	CSA	BSA	PTSA
0.00	6.55E+14	6.55E+14	6.55E+14
1.00	2.330E+13	3.035E+13	4.297E+13
2.00	7.357E+12	5.430E+12	1.230E+12
4.00	6.405E+11	2.227E+11	2.694E+11
6.00	4.422E+10	1.258E+10	1.647E+10
10.00	7.124E+09	4.603E+09	2.260E+09

**Table A4** Volume resistivity of polyaniline-coated on polyester fabric doped with different types of dopant at various concentrations

Concentration of dopant (mM)	Type of dopant		
	CSA	BSA	PTSA
0.00	3.920E+14	3.920E+14	3.920E+14
1.00	2.180E+12	8.702E+11	8.178E+11
2.00	9.237E+10	2.668E+10	7.360E+10
4.00	6.839E+09	1.876E+09	1.860E+09
6.00	4.486E+08	2.708E+08	2.700E+08
10.00	2.645E+08	2.639E+08	2.640E+08

## Appendix B Resistivity of Polythiophene-Coated Fabric

**Table B1** Surface resistivity of polythiophene-coated polyester fabric doped by the two methods of doping

Doping method	Type of dopant		
	CSA	PTSA	5-SCA
Doping during the first step	2.456E+12	1.721E+13	2.930E+11
Doping after the final step	3.602E+13	5.709E+13	4.002E+10

**Table B2** Volume resistivity of polythiophene-coated polyester fabric doped by the two methods of doping

Doping method	Type of dopant		
	CSA	PTSA	5-SCA
Doping during the first step	5.872E+11	9.562E+12	1.430E+11
Doping after the final step	7.741E+12	2.297E+12	4.736E+10

**Table B3** Surface resistivity of polythiophene-coated polyester fabric doped with different types of dopant at various concentrations

Concentration of dopant (mM)	Type of dopant		
	CSA	PTSA	5-SCA
0.00	7.237E+13	7.237E+13	7.237E+13
10.00	6.276E+13	4.699E+12	3.528E+12
20.00	3.602E+13	5.709E+12	4.002E+10
40.00	5.291E+12	4.258E+10	8.338E+09
60.00	1.051E+12	3.554E+09	6.968E+09

**Table B4** Volume resistivity of polythiophene-coated polyester fabric doped with different types of dopant at various concentrations

Concentration of dopant (mM)	Type of dopant		
	CSA	PTSA	5-SCA
0.00	5.477E+13	5.477E+13	5.477E+13
10.00	2.886E+13	8.627E+12	2.961E+12
20.00	7.741E+12	2.297E+12	4.736E+10
40.00	3.433E+12	2.153E+10	1.715E+09
60.00	4.928E+11	3.232E+09	2.143E+09

### Appendix C All data of resistivity of polyaniline-Coated Fabric

**Table C1** Surface resistivity of polyaniline-coated polyester fabric doped by doping during the first step

CSA	S1	S2	S3	S4	Average	Stdev
1	1.49E+13	4.66E+13	1.55E+13	1.63E+13	2.33E+13	1.55E+13
2	5.68E+12	8.06E+12	8.33E+12		7.357E+12	1.46E+12
4	1.47E+11	1.38E+12	3.93E+11		6.406E+11	6.54E+11
6	9.52E+09	4.04E+10	8.27E+10		4.422E+10	3.68E+10
10	8.08E+09	6.17E+09	3.75E+09		7.125E+09	1.36E+09

BSA	S1	S2	S3	S4	Average	Stdev
1	1.01E+13	5.06E+13			3.035E+13	2.87E+13
2	5.30E+12	7.86E+12	3.14E+12		5.432E+12	2.37E+12
4	2.53E+11	3.44E+11	1.93E+11		2.632E+11	7.63E+10
6	1.62E+10	8.93E+09	3.69E+10		2.066E+10	1.45E+10
10	5.29E+09	1.66E+12	4.60E+09	3.42E+09	4.60E+09	8.28E+11

PTSA	S1	S2	S3	S4	Average	Stdev
1	4.01E+13	4.59E+13			4.298E+13	4.122E+12
2	2.09E+12	1.08E+12	5.35E+11		1.234E+12	7.893E+11
4	7.72E+10	1.69E+11	5.62E+11		2.695E+11	2.578E+11
6	1.65E+10	1.51E+10	1.78E+10		1.646E+10	1.355E+09
10	4.03E+09	1.13E+09	2.69E+09		2.26E+09	1.453E+09



**Table C2** Volume resistivity of polyaniline-coated polyester fabric doped by doping during the first step

CSA	V1	V2	V3	V4	Average	Stdev
1	1.26E+12	7.08E+12	2.05E+11	1.75E+11	2.180E+12	3.31E+12
2	9.40E+10	9.63E+10	8.68E+10		9.239E+10	4.95E+09
4	1.95E+09	1.43E+10	4.32E+09		6.840E+09	4.91E+07
6	4.27E+08	4.14E+08	5.05E+08		4.487E+08	4.91E+07
10	2.65E+08	2.64E+08	2.63E+08		2.640E+08	6.01E+05

BSA	V1	V2	V3	V4	Average	Stdev
1	4.46E+11	1.29E+12			8.700E+11	6.00E+11
2	2.44E+10	7.69E+10	2.90E+10		2.668E+10	2.91E+10
4	2.46E+09	2.04E+09	1.12E+09		1.876E+09	6.85E+08
6	2.67E+08	2.70E+08	2.76E+08		2.709E+08	4.75E+06
10	2.64E+08	2.64E+08	2.64E+08		2.640E+08	0.00E+00

PTSA	V1	V2	V3	V4	Average	Stdev
1	7.98E+11	8.38E+11			8.179E+11	2.850E+10
2	1.09E+10	1.35E+10	1.96E+11		7.356E+10	1.063E+11
4	1.18E+09	2.53E+09	6.42E+09		1.860E+09	2.718E+09
6	2.68E+08	2.71E+08	2.72E+08		2.704E+08	2.237E+06
10	2.66E+08	2.64E+08	2.63E+08		2.640E+08	1.387E+06

**Table C3** Surface resistivity of polyaniline-coated polyester fabric doped by doping after the final step

Dopant	S1	S2	S3	S4	Average	Stdev
CSA	8.03E+11	5.46E+11	6.28E+12	8.78E+11	2.13E+12	2.77E+12
BSA	1.51E+13	1.35E+14	1.59E+11	2.19E+11	3.76E+13	6.53E+13
PTSA	7.50E+10	3.48E+10			5.492E+10	2.845E+10

**Table C4** Volume resistivity of polyaniline-coated polyester fabric doped by doping after the final step

Dopant	V1	V2	V3	V4	Average	Stdev
CSA	2.84E+10	3.71E+09	5.87E+11	6.46E+11	3.163E+11	3.012E+11
BSA	4.47E+11	8.44E+11	2.05E+12	7.99E+11	1.035E+12	6.058E+11
PTSA	1.83E+11	5.69E+10			1.200E+11	8.917E+10

### Appendix D All data of resistivity of polythiophene-Coated Fabric

**Table D1** Surface resistivity of polythiophene-coated polyester fabric doped by doping after the final step

CSA	S1	S2	S3	Average	Stdev
10	1.80E+13	3.18E+13	1.38E+14	6.26E+13	5.36E+13
20	9.68E+12	1.25E+13	8.59E+13	3.60E+13	3.53E+13
40	6.02E+12	2.25E+12	7.61E+12	5.29E+12	2.25E+12
60	1.66E+12	1.29E+12	1.95E+11	1.05E+12	6.22E+11

PTSA	S1	S2	S3	S4
10	3.00E+12	1.20E+13	9.95E+12	7.58E+11
20	4.41E+12	1.33E+10	1.23E+13	2.25E+13
40	1.99E+10	4.74E+08	1.91E+11	3.68E+08
60	1.17E+08	9.00E+09	5.58E+09	9.40E+09

PTSA	S5	S6	S7	Average	Stdev
10	1.24E+12	1.29E+12		4.70E+12	4.95E+12
20	2.12E+11	1.12E+11	4.43E+11	5.71E+12	8.64E+12
40	1.03E+09			4.26E+10	8.34E+10
60	4.50E+08	1.71E+08	1.74E+08	3.55E+09	4.32E+09

5-SCA	S1	S2	S3
10	1.01E+12	9.33E+12	2.40E+11
20	1.35E+09	5.74E+09	1.38E+11
40	1.57E+09	8.33E+09	1.62E+10
60	1.01E+12	2.75E+08	1.18E+10

5-SCA	S4	S5	Average	Stdev
10			3.5E+12	5.04E+12
20	4.61E+10	9.36E+09	4.0E+10	5.75E+10
40	7.26E+09		8.3E+09	6.02E+09
60	1.01E+10	5.76E+09	7.0E+09	5.14E+09

**Table D2** Volume resistivity of polythiophene-coated polyester fabric doped by doping after the final step

CSA	V1	V2	V3	Average	Stdev
10	1.97E+13	2.72E+13	3.96E+13	2.88E+13	8.21E+12
20	8.71E+12	4.04E+12	1.05E+13	7.75E+12	2.72E+12
40	7.62E+12	2.25E+11	2.45E+12	3.43E+12	3.10E+12
60	5.76E+11	8.53E+11	4.92E+10	4.93E+11	3.33E+11

PTSA	V1	V2	V3	V4
10	2.70E+12	2.35E+13	2.25E+13	1.64E+12
20	2.02E+12	1.00E+11	1.22E+13	1.91E+11
40	1.82E+10	7.66E+08	9.40E+09	9.59E+09
60	3.19E+09	2.76E+09	4.67E+09	4.29E+08

PTSA	V5	V6	V7	Average	Stdev
10	4.19E+11	1.04E+12		8.63E+12	1.11E+13
20	1.30E+12	7.34E+10	1.95E+11	2.30E+12	4.43E+12
40	6.97E+10			2.15E+10	2.76E+10
60	1.69E+09	4.20E+09	5.68E+09	3.23E+09	1.80E+09

5-SCA	V1	V2	V3
10	1.91E+12	6.79E+12	1.84E+11
20	5.53E+08	1.25E+09	1.86E+11
40	9.76E+08	1.11E+09	3.13E+09
60	6.33E+12	2.71E+08	6.58E+09

5-SCA	V4	V5	Average	Stdev
10			2.96E+12	3.43E+12
20	4.53E+10	3.69E+09	4.74E+10	7.98E+10
40	1.64E+09		1.71E+09	9.87E+08
60	9.15E+08	8.03E+08	2.14E+09	2.97E+09

**Table D3** Surface resistivity of polythiophene-coated polyester fabric doped by doping during the first step

Dopant	S1	S2	S3	Average	Stdev
CSA	2.94E+12	9.50E+11	3.48E+12	2.46E+12	1.33E+12
PTSA	5.80E+12	2.31E+13	2.28E+13	1.72E+13	9.90E+12
5-SCA	9.57E+10	4.90E+11		2.93E+11	2.79E+11

**Table D4** Volume resistivity of polythiophene-coated polyester fabric doped by doping during the first step

Dopant	V1	V2	V3	Average	Stdev
CSA	1.70E+11	4.32E+11	1.16E+12	5.87E+11	5.13E+11
PTSA	7.84E+11	2.31E+13	4.84E+12	9.57E+12	1.19E+13
5-SCA	2.46E+11	4.03E+10		1.43E+11	1.45E+11

## Appendix E Resistivity of untreated and undoped fabrics

**Table E1** Resistivity of untreated polyester fabric

Sample	Surface resistivity	Volume resistivity
untrerat1	3.24E+14	2.28E+14
untrerat2	7.12E+14	2.16E+14
untrerat3	8.91E+14	2.71E+14
untrerat4	8.72E+14	4.10E+14
untrerat5	6.55E+14	3.92E+14
untrerat6	1.51E+16	9.03E+15
untrerat7	2.98E+14	6.85E+13
untrerat8	1.89E+14	6.76E+13
untrerat9	7.23E+13	6.21E+13
untrerat10	4.91E+13	5.87E+13
untrerat11	1.07E+13	6.12E+12
untrerat12	2.09E+13	1.23E+13
Average	1.597E+15	9.016E+14
Stdev	4.264E+15	2.564E+15

**Table E2** Resistivity of undoped polyaniline-coated polyester fabric

Sample	Surface resistivity	Volume resistivity
1	1.31E+13	2.50E+14
2	7.46E+14	3.34E+14
3	7.29E+14	4.57E+14
4	7.63E+14	2.37E+14
5	6.83E+14	2.65E+14
6	6.93E+14	5.46E+14
7	6.98E+14	2.89E+14
8	6.19E+14	3.29E+14
9	6.77E+14	4.80E+14

Sample	Surface resistivity	Volume resistivity
10	7.22E+14	1.95E+14
11	6.69E+14	5.35E+14
12	7.64E+14	1.83E+14
13	6.55E+14	3.58E+14
14	7.70E+14	3.91E+14
15	7.28E+14	2.95E+14
16	7.61E+14	6.05E+14
17	4.57E+14	5.04E+14
18	7.09E+14	6.82E+14
19	4.56E+14	4.60E+12
20	5.49E+14	1.56E+13
21	7.25E+14	1.66E+15
22	1.03E+15	4.08E+13
23	4.50E+14	3.74E+14
Average	6.550E+14	3.924E+14
Stdev	1.871E+14	3.298E14

**Table E2** Resistivity of undoped polythiophene-coated polyester fabric

sample	Surface resistivity	Volume resistivity
1	1.21E+12	1.82E+12
2	9.82E+12	2.68E+12
3	1.81E+12	5.72E+12
4	2.09E+13	1.23E+13
5	9.42E+13	1.70E+12
6	6.86E+12	7.42E+13
7	6.47E+12	7.22E+13
8	4.38E+14	2.68E+14
Average	7.24E+13	5.48E+13
Stdev	1.509E+14	9.157E+13

## CURRICULUM VITAE

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